<u>**Remarks:**</u>

Claims 1 to 15, 17 to 26, and 28 to 30 are pending.

Claim 27 has been cancelled. The remaining independent claims are 1, 21 and 28.

Claims 1, 21, and 28 and their dependent claims are rejected under 35 USC 103(a) as obvious having regard to Tibshirani, in view of three or more other cited references.

The Examiner admits that "Tibshirani does not teach collecting genetic data, as recited in claims 1, 21, and 28."

The Examiner also admits that "Tibshirani does not specifically teach calculating weights determined with a constraint that weights associated with <u>sets of data</u> <u>having like genetic data are the same,</u> as in claims 1, 2, 3, 19, 20, 21, and 28-30", but alleges that "this limitation would have been obvious to one of ordinary skill in the art, since Tibshirani shows that weights associated with like data sets have the same values [p.387, lines 12-17]." (emphasis added).

The applicant respectfully disagrees with that allegation for at least the following reason.

The paragraph at page 387 lines 12-17 of Tibshirani is reproduced below in its entirety:

> "If the log partial likelihood is bounded in β for the given data set, then for fixed s a solution to (3) exists since the region $\sum |\beta_j| \leq s$ is compact. However, the solution may not be unique. For example, if two regressors variables X_1 and X_2 are identically equal, then if $\beta > 0$, for any γ in $[0, \beta]$ the linear combination $X_1 \gamma + (\beta - \gamma) X_2$ has exactly the same value for the l and the constraint $|\gamma| + |\beta - \gamma|$. Note that this is due to

the linearity of the constraint; in ridge style penalization involving the squared coefficients, this does not occur."

Nowhere in this paragraph is it stated, or even remotely suggested, that "weights associated with like data sets have the same values," let alone disclosed or suggested that weights associated with <u>sets of data</u> having <u>like genetic data</u> should be the same. Careful review of this paraphrase reveals that it discusses that, in certain conditions, "if two <u>regressors variables</u> X_1 and X_2 are identically equal" then for any γ "the linear combination $X_1 \gamma + (\beta - \gamma) X_2$ has exactly the same value" (presumably because $X_1 \gamma + (\beta - \gamma) X_2 = \beta X_2$, which is independent of γ. The constraint $|\gamma| + |\beta - \gamma| = \beta$ is also independent of γ). The <u>regressors variables</u> X_1 and X_2 are "variables", clearly not weights. There is simply no disclosure or suggestion in Tibshirani that the mathematical expression "$X_1 \gamma + (\beta - \gamma) X_2$" is used as a weight or represents weights associated with different data sets. Further, the above-noted paragraph of Tibshirani demonstrates that "the solution may not be unique" under the given <u>hypothetical</u> conditions. There is thus also no suggestion that one should actively try to satisfy these hypothetical conditions for all data sets. The only "constraint" on β mentioned in Tibshirani is that "$\sum|\beta_j| \le s$", where s "is a user-specified parameter" (see p. 386, ll. 3-5 of Tibshirani).

Thus, it is submitted that the Examiner has failed to establish Tibshirani discloses or suggests "calculating weights determined with a constraint that weights associated with sets of data having like genetic data are the same".

In addition, as claimed for example in Claim 1, the recited weights used to weight the deviates are determined with a <u>constraint</u> that the weights associated with sets of data having <u>like genetic data</u> are the same. As made clear in Claim 1, genetic data is only a subset of data in each data set. As explained in the current application and in the previously submitted response, when the weights associated with data sets are determined with a constraint based on subsets of data (namely genetic data), <u>instead of the complete sets of data</u>, certain advantages can be achieved. The Examiner has not indicated where in the

cited references such a feature is disclosed or suggested. For example, Tibshirani discloses that the parameter β is determined through maximization of the expression shown in (2) (see p. 386, ll. 24-26 of Tibshirani), or according to the procedure described at p. 386 lines 30-41. In both cases, the entire data set is used for estimating β.

Reviews of other cited references reveal that they fail to cure the defects of Tibshirani discussed above.

Thus, withdrawal of the rejections to independent claims 1, 21, and 28, and claims dependent therefrom, is respectfully requested.

The rejection to claim 27 is moot in view of its deletion.

No new matter has been added by way of this amendment.

In view of the foregoing, favourable consideration of the application is respectfully requested.

Respectfully submitted,

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